W03308

0054232

SEVERN TRENT SERVICES

STL St. Louis
13715 Rider Trail North
Earth City, MO 63045

Tel 314 298 8566
Fax 314 298 8757
www.stl-inc.com

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JAN 0 9 2000
EDMC

ANALYTICAL REPORT

PROJECT NO. 100HR3 IAM 8/00

C00-029

Lot #: F0I140300
SDG #: W03308

Joan Kessner

Bechtel Hanford, Inc.
3190 George Washington Way
Richland, WA 99352

SEVERN TRENT LABORATORIES, INC.

MARTI WARD
Project Manager

NOV 2000
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November 1, 2000

SEVERN TRENT SERVICES

CASE NARRATIVE

STL St. Louis
13715 Rider Trail North
Earth City, MO 63045

Tel 314 298 8566
Fax 314 298 8757
www.stl-inc.com

Bechtel Hanford Incorporated
3190 George Washington Way
Richland, Washington 99352

November 1, 2000
Attention: Joan Kessner

Project Number	:	38437
SDG	:	W03308
Number of Samples	:	two
Sample Matrix	:	water
Data Deliverable	:	Summary
Date SDG Closed	:	September 26, 2000

II. Introduction

Between September 14, 2000 and September 22, 2000, two (2) "water" samples were received by STL-St. Louis for chemical analysis. The samples were received within temperature criteria. See the attached Sample Summary sheet for the client and lab Ids for these samples.

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested: 300.0 Anions IC - Sulfate

Deviation from Request: There were no deviations.

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike
MS- Matrix Spike
DUP- Matrix Duplicate
MSD- Matrix Spike Duplicate

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SEVERN TRENT SERVICES

STL St. Louis

Bechtel Hanford Incorporated
November 1, 2000
Project Number: 38437
SDG: W03308
Page 2

V. Comments

General: The term "Detection Limit" used in the analytical data reports refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

Please refer to the attached cross-reference table for the standard preparation methods used at Quanterra, St. Louis.

Results reported from a dilution are flagged with a "D" qualifier.

Wet Chemistry: A Laboratory Control Sample, Method Blank, Matrix Spike and Matrix Duplicate were analyzed with each preparation batch per the protocol for this analysis.

There were no comments or non-conformances associated with this data.

I certify that this Data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Marti Ward

Marti Ward
St. Louis Project Manager

SAMPLE SUMMARY

F0I230105

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
DKX4N	001	B0YT21	09/21/00	11:12

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

METHODS SUMMARY

F0I230105

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Sulfate	MCAWW 300.0A	MCAWW 300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SAMPLE SUMMARY

F0I140300

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
DKDVP	002	B0YT29	09/13/00	08:57

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

METHODS SUMMARY

F0I140300

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Sulfate	MCAWW 300.0A	MCAWW 300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 9/14/00
Page 1 CLIENT ANALYSIS SUMMARY Time: 19:29:43
STL St. Louis User Id.: WATSONJ

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 38437
PROJECT MANAGER: MARTI WARD LAB ID: F-0I140300-002
PROJECT #: 100HR3 IAM 8/00 WORK ORDER: DKDVP
REPORT TO: Joan Kessner RECEIVING DATE: 9/13/00
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 9/13/00
SITE: C00-029 ANALYTICAL DUE DATE: 10/13/00N
AMOUNT REC"D: 500P REPORT DUE DATE: 10/27/00
STORAGE LOC: T1A PRIORITY: 30
LOT COMMENTS: Duplicate required when QC is logged in SAMPLING TIME: 8:57
MATRIX: WATER RECEIVING TIME: 9:30
SAMPLE ID: B0YT29
QC PACKAGE: Special Report - see checklist SDG# : W03308
SAMPLE COMMENTS:
DUPLICATE IS REQUIRED
Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Sulfate (300.0, Ion Chromatography)	06	9/14/00	0/00/00	10/11/00

NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION
(I-88-CY-01) DKDVP-1-01 Protocol: A QC Program: STANDARD TEST SET

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 9/14/00
Time: 19:29:43
User Id.: WATSONJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100HR3 IAM 8/00
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: C00-029
AMOUNT REC"D: 500P
STORAGE LOC: T1A
LOT COMMENTS: Duplicate required when QC is logged in
MATRIX: WATER
SAMPLE ID: B0YT29
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
DUPLICATE IS REQUIRED
Beginning Depth: .00 **Ending Depth:** .00

QUOTE/SAR #: 38437
LAB ID: F-0I140300-002-S
WORK ORDER: DKDVP MS
RECEIVING DATE: 9/13/00
SAMPLING DATE: 9/13/00
ANALYTICAL DUE DATE: 10/13/00N
REPORT DUE DATE: 10/27/00
PRIORITY: 30
SAMPLING TIME: 8:57
RECEIVING TIME: 9:30
SDG# : W03308

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Sulfate (300.0, Ion Chromatography)	06	9/14/00	0/00/00	10/11/00

NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION
(I-88-CY-01) DKDVP-1-02 Protocol: A QC Program: STANDARD TEST SET

Figure 1. Sample Check-in List

Date/Time Received: 9/13/00 1500 SDG#: W03308

Work Order Number: JOI130305 SAF#: C00-030/C00-029/S00-008

Shipping Container ID: SML527 Chain of Custody #: C00-030-3/C00-029-36/S00-008-4,98,3 5

1. Outermost shipping container damaged? Yes [] No [✓]

2. Custody Seals on shipping container intact? Yes [✓] No []

3. Custody Seals dated and signed? Yes [✓] No []

4. Chain-of-Custody record present? Yes [✓] No []

5. Chain-of-Custody includes the following information:
   - Client name Yes [✓] No []
   - Project name or number Yes [✓] No []
   - Sample date/time for each sample Yes [✓] No []
   - Container types, sizes and number of containers Yes [✓] No []
   - Short description of sample, i.e., matrix Yes [✓] No []
   - Analyses requested Yes [✓] No []
   - Preservation used or "none" or N/A if not applicable Yes [✓] No []
   - Date and time of relinquish and receipt Yes [✓] No []
   - Signatures of those persons relinquishing and receiving Yes [✓] No []

6. Sample numbers on chain of custody match those on sample containers? 13 Yes [✓] No []

7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes [✓] No []

8. Cooler temperature: 4°

9. Vermiculite/packing materials is: Wet [✓] Dry []

10. Samples have: ✓ tape ✓ hazard labels ____ custody seals ____ appropriate sample labels

11. Samples are: ✓ in good condition ____ leaking ____ broken ____ have air bubbles

12. Were any anomalies identified in sample receipt? Yes [] No []

13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: [signature] Date: 9/13/00

Telephone/Fax/Emailed to: _____ On _____ By _____

AIRBORNE EXPRESS.

FROM
STL RICHLAND
2800 GEORGE WASHINGTON WY
RICHLAND WA
USA 99352
SAMPLE CONTROL (509)375 3131

2663499 344

Origin PSC

These No.'s MUST match
Shipment No
2663499-344

Service

IF DESTINATION IS OUTSIDE OF THE UNITED STATES: THESE COMMODITIES, TECHNOLOGY OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.

002663499 344
002663499 344

Seq No 10

Weight 9 LB Wt. 1 Pc

Billing Rel.

Bill To

TO
~~STL ST. LOUIS~~
13715 N RIDER TRAIL
EARTH CITY MO
USA 63045
SAMPLE CONTROL
(314) 298-8566

STLV 7W

2001 (10/98) W

2663499 344
Ship # 2663499-344 Svcs. EXP 09/13/00 Wt. 9 LB 1 Pc
Desc Dims
Bill Rel. Bill To

2001 (10/98) W SENDER'S COPY

Zip/Postal Code 63045
Chg. $12.83

11

STL St. Louis

W03308

STL St. Louis

Committed to *Your* Success

Lot No.: F0I14B00
W03308

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: STL Richland
Date: 09/14 00 Time: ~~08~~ 0930
Quote No: 38437
Initiated by: Jill Clark
Shipper/No: Airborne 002663499 344
RFA/COC Numbers: COC-029-316

Condition/Variance (Check all that apply):

1. ☐ Sample received broken/leaking.
2. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C
     Record temperature: _____
   - ☐ pH _____
   - ☐ other: _____
3. ☐ Sample received in improper container.
4. ☐ Sample received without proper paperwork. Explain: _____
5. ☐ Paperwork received without sample.
6. ☐ No sample ID on sample container.
7. ☐ Custody tape disturbed/broken/missing/not tamper evident type (circle all that apply).
8. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
9. ☐ All coolers on airbill not received with shipment.
10. ☐ Sample volume insufficient for analysis
11. ☐ Other (explain below) _____

☒ **No variances were noted during sample receipt.**

☒ **Cooler Temperature Upon Receipt in °C:** 3

Temperature Variance Does Not Affect the Following Analyses: _____

Notes: Blue ice partially melted,

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: (or designate) Jill Clark Date: 091400

Project Management Review: Mulard Date: 9.15.00

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY HIS/HER INITIALS AND THE DATE NEXT TO THAT ITEM

Form: SL-ADMIN-0004, Revised 6/21/00 SOP Reference: STL-QA-0006

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 9/23/00
Page 1 CLIENT ANALYSIS SUMMARY Time: 6:13:30
STL St. Louis User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 38437
PROJECT MANAGER: MARTI WARD LAB ID: F-0I230105-001
PROJECT #: 100HR3 IAM 8/00 WORK ORDER: DKX4N
REPORT TO: Joan Kessner RECEIVING DATE: 9/22/00
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 9/21/00
SITE: C00-029 ANALYTICAL DUE DATE: 10/23/00N
AMOUNT REC"D: 500P REPORT DUE DATE: 11/07/00
STORAGE LOC: T3A PRIORITY: 31
LOT COMMENTS: Duplicate required when QC is logged in SAMPLING TIME: 11:12
MATRIX: WATER RECEIVING TIME: 10:30
SAMPLE ID: B0YT21
QC PACKAGE: Special Report - see checklist SDG# : W03308
SAMPLE COMMENTS:

Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Sulfate (300.0, Ion Chromatography)	06	9/23/00	0/00/00	10/19/00

NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION
(I-88-CY-01) DKX4N-1-01 Protocol: A QC Program: STANDARD TEST SET

Q-21023 cur 974 temp. 2°

W03308

STL St. Louis

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # C00-029-3 Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-029	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1 & 2) GW SAMPLING, AUGUST 2000	Logbook No.: WM-SAWS-1437	Ice Chest No.: SML 147 Temp.
Shipped To (Lab): Severn Trent Incorporated	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: NA
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** ** SDG
W03308 DI210270

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
~~B0YT20~~		W	9-21-00	1112	~~1x500-mL GP~~	7196_CR6: Hexavalent Chromium (1) * DKTIF	Cool 4C
B0YT21		W	↓	↓	1x500-mL P	300.0_ANIONS_IC: Sulfate (1) recvd. STL-STL	Cool 4C
~~B0YT21~~		W	↓	↓	~~1x250-mL P~~	~~Lab Use Only~~ *	None

Relinquished By	Print	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON	D. R. Brewington	1430 SEP 21 2000	2:100PM BW Kreutz	BW Kreutz	BW Kreutz	1430 SEP 21 2000
BW Kreutz	BW Kreutz	9/21/00 1600	Sue Nelson	STL	09.22.00 1030 ~~09.23.00~~	
					SW 09.22.00	

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

Relinquished By	Date/Time	Received By	Date/Time

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

14

Figure 1. Sample Check-in List

Date/Time Received: 9/21/00 1430 SDG#: W03308

Work Order Number: JOI210270 SAF#: COU-029 / WOD-009

Shipping Container ID: SML 147 Chain of Custody #: COU-029-3 / WOD-009-27

1. Outermost shipping container damaged? Yes [] No [✓]

2. Custody Seals on shipping container intact? Yes [✓] No []

3. Custody Seals dated and signed? Yes [✓] No []

4. Chain-of-Custody record present? Yes [✓] No []

5. Chain-of-Custody includes the following information:
   - Client name Yes [✓] No []
   - Project name or number Yes [✓] No []
   - Sample date/time for each sample Yes [✓] No []
   - Container types, sizes and number of comminers Yes [✓] No []
   - Short description of sample, i.e., matrix Yes [✓] No []
   - Analyses requested Yes [✓] No []
   - Preservation used or "none" or N/A if not applicable Yes [✓] No []
   - Date and time of relinquish and receipt Yes [✓] No []
   - Signatures of those persons relinquishing and receiving Yes [✓] No []

6. Sample numbers on chain of custody match those on sample containers? 5 Yes [✓] No []

7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes [✓] No []

8. Cooler temperature: 4°C

9. Vermiculite/packing materials is: Wet [✓] Dry []

10. Samples have: ✓ tape ✓ hazard labels ✓ custody seals ✓ appropriate sample labels

11. Samples are: ✓ in good condition ____ leaking ____ broken ____ have air bubbles

12. Were any anomalies identified in sample receipt? Yes [] No []

13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: [signature] Date: 9/21/00

Telephone/Fax/E:mailed to: _____ On _____ By _____

W03308

STL St. Louis

AIRBORNE EXPRESS

FROM
SEVERN TRENT LABORATORIES
2800 GEORGE WASHINGTON WY
RICHLAND WA
USA 99352
SAMPLE CONTROL (509)375 2131

2663505 040

Origin PSC

These No.'s MUST match
Shipment No.
2663505-040

Service

IF DESTINATION IS OUTSIDE OF THE UNITED STATES- THESE COMMODITIES, TECHNOLOGY OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.

002663505 040
002663505 040

TO
STL ST. LOUIS
13715 N RIDER TRAIL
EARTH CITY MO
USA 63045
SAMPLE CONTROL
(314) 298-8566

Seq. No. 5
Weight 67 LB man. 1 Pc
Billing Ref
Bill To

2001 (10/98) W

STLV 7W

AIRBORNE EXPRESS

2663505 040
Ship. # 2663505-040 Svcs. EXP
Desc.
Bill Ref.

09/21/00 Wt. 67 LB 1 Pc
Dims
Bill To

2001 (10/98) W SENDER'S COPY
Zip/Postal Code 63045
Chg. $57.36

Committed to *Your* Success

Lot No.: FOI230105
W03308

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: PNNL
Date: 09.22.00 Time: 1030
Quote No: 38437
Initiated by: [illegible]
Shipper/No: Airborne 0026635050 40
RFA/COC Numbers: C00-029-3

Condition/Variance (Check all that apply):

1. ☐ Sample received broken/leaking.
2. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C
     Record temperature: _____
   - ☐ pH _____
   - ☐ other: _____
3. ☐ Sample received in improper container.
4. ☐ Sample received without proper paperwork. Explain: _____
5. ☐ Paperwork received without sample.
6. ☐ No sample ID on sample container.
7. ☐ Custody tape disturbed/broken/missing/not tamper evident type (circle all that apply).
8. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
9. ☐ All coolers on airbill not received with shipment.
10. ☐ Sample volume insufficient for analysis
11. ☐ Other (explain below) _____

☑ **No variances were noted during sample receipt.**

☐ **Cooler Temperature Upon Receipt in °C:** 2°

Temperature Variance Does Not Affect the Following Analyses: _____

Notes: _____

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: (or designate) [illegible] Date: 09.22.00

Project Management Review: MWard Date: 9.25.00

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY HIS/HER INITIALS AND THE DATE NEXT TO THAT ITEM

Form: SL-ADMIN-0004, Revised 6/21/00 SOP Reference: STL-QA-0006

WET CHEMISTRY

BECHTEL HANFORD, INC.

Client Sample ID: B0YT21

General Chemistry

Lot-Sample #...: F0I230105-001 Work Order #...: DKX4N Matrix.....: WATER
Date Sampled...: 09/21/00 Date Received..: 09/22/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Sulfate	84.0	5.0	mg/L	MCAWW 300.0A	10/13/00	0305239

Dilution Factor: 10 MDL.....: 1.1

BECHTEL HANFORD, INC.

Client Sample ID: B0YT29

General Chemistry

Lot-Sample #...: F0I140300-002 Work Order #...: DKDVP Matrix.....: WATER
Date Sampled...: 09/13/00 Date Received..: 09/13/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Sulfate	73.3 D	2.5	mg/L	MCAWW 300.0A	09/14/00	0266308

Dilution Factor: 5 MDL.....: 0.54

NOTE(S):

RL Reporting Limit

D Result was obtained from the analysis of a dilution.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F0I140300 **Work Order #...:** DKDVP-SMP DKDVP-DUP **Matrix.....:** WATER

Date Sampled...: 09/13/00 **Date Received..:** 09/13/00

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Sulfate						SD Lot-Sample #:	F0I140300-002	
	73.3 D	75.0 D	mg/L	2.2	(0-20)	MCAWW 300.0A	09/14/00	0266308

Dilution Factor: 5

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

D Result was obtained from the analysis of a dilution.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F0I140300 **Matrix.....:** WATER
Date Sampled...: 09/13/00 **Date Received..:** 09/13/00

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Sulfate			Work Order #...:		DKDVP102	MS Lot-Sample #:		F0I140300-002
	73.3	20.0	94.2 D	mg/L	104	MCAWW 300.0A	09/14/00	0266308
			Dilution Factor: 10					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

D Result was obtained from the analysis of a dilution.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F0I230105 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Sulfate		Work Order #: DN3641AA		MB Lot-Sample #:	F0J310000-239	
	ND	0.50	mg/L	MCAWW 300.0A	10/13/00	0305239
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F0I140300 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Sulfate		Work Order #: DKVHP101		MB Lot-Sample #:	F0I220000-308	
	ND	0.50	mg/L	MCAWW 300.0A	09/14/00	0266308
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: F0I230105 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Sulfate		WO#:DN3641AC-LCS/DN3641AD-LCSD				LCS Lot-Sample#: F0J310000-239		
	4.00	3.51	mg/L	88		MCAWW 300.0A	10/13/00	0305239
	4.00	3.64	mg/L	91	3.5	MCAWW 300.0A	10/13/00	0305239

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: F0I140300 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Sulfate		WO#:DKVHP102-LCS/DKVHP103-LCSD				LCS Lot-Sample#: F0I220000-308		
	4.00	3.84	mg/L	96		MCAWW 300.0A	09/14/00	0266308
	4.00	3.88	mg/L	97	0.98	MCAWW 300.0A	09/14/00	0266308

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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Bechtel Hanford

Analysis By

Severn Trent Laboratories Richland

2800 G.W. Way, Richland, Wa 99352, (509) 375-3131

Data Package Contains 47 *Pages*

Report Nbr: 11519

SDG No.	SAF No.	CLIENT ID No.	STL ID No.
W03308	C00-029	B0YT15	9DK82E10
		B0YT28	9DKA8310
		B0YT20	9DKT1F10

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OCT 2008

Comments:

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STL Richland
2800 George Washington Way
Richland, WA 99352-1613

Tel: 509 375 3131
Fax: 509 375 5590
www.stl-inc.com

CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.
3350 George Washington Way
Richland, WA 99352

September 29, 2000

Attention: Joan Kessner

SAF Number	:	C00-029
Date SDG Closed	:	September 26, 2000
Number of Samples	:	Three (3)
Sample Type	:	Water
SDG Number	:	W03308
Data Deliverable	:	45-Day / Summary

I. Introduction

Between September 12, 2000 and September 21, 2000, three water samples were received at STL Richland (STLR) for chemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

STLR ID#	BHI ID#	MATRIX	DATE OF RECEIPT
9DK82E10	B0YT15	WATER	9/12/00
9DKA8310	B0YT28	WATER	9/13/00
9DKT1F10	B0YT20	WATER	9/21/00

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analysis was: **Chemical Analysis**
Chromium Hex by EPA method 7196

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STL Richland

III. Quality Control

The analytical results for each analysis performed under SDG W03308 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in mg/L.

IV. Comments

Chemical Analyses

Chromium Hex by EPA method 7196:

The LCS, batch blank, sample, sample duplicate (B0YT15) and sample matrix spike/matrix spike duplicate (B0YT15) results for analysis performed September 13, 2000 (on sample received 9/12/00) are within contractual requirements.

The LCS, batch blank, sample, sample duplicate (B0YT28) and sample matrix spike/matrix spike duplicate (B0YT28) results for analysis performed September 13, 2000 (on sample received 9/13/00) are within contractual requirements.

The LCS, batch blank, sample, sample duplicate (B0YT20) and sample matrix spike/matrix spike duplicate (B0YT20) results for analysis performed September 21, 2000 (on sample received 9/21/00) are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:

Jackie Waddell

Jackie Waddell
Project Manager

Drinking Water Method Cross References

	DRINKING WATER METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**STL Richland's SOP number**
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460-70	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D57174-91	Uranium	RICH-RC-5058
Tritium	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Drinking Water Method Cross References

	DRINKING WATER METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**STL Richland's SOP number**
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460-70	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D57174-91	Uranium	RICH-RC-5058
Tritium	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

SEVERN TRENT SERVICES

SAMPLE RESULTS

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03308 / 11519
LOT,RPT DB ID:	J0I120243- 9DK82E10	**MATRIX:**	WATER
CLIENT ID:	B0YT15	**DATE RECEIVED:**	9/12/00 2:55:00 PM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
HEXCHROME	2.23E-01		N/A	N/A	2.00E-03	mg/L	N/A	EPA7196	DK82E	0257277

Number of Results: 1

Result = IDL When Not Detected
(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result <

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rptChemRadSample; v3.41

SEVERN TRENT SERVICES

SAMPLE RESULTS

LAB NAME:	**STL Richland**		**SDG: /RPT GRP:**	W03308 / 11519
LOT,RPT DB ID:	J0I130305-	9DKA8310	**MATRIX:**	WATER
CLIENT ID:	B0YT28		**DATE RECEIVED:**	9/13/00 3:00:00 PM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
HEXCHROME	5.34E-01		N/A	N/A	2.00E-03	mg/L	N/A	EPA7196	DKA83	0257535

Number of Results: 1

Result = IDL When Not Detected
(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result <

Severn Trent Laboratories Richland
rptChemRadSample; v3.41

SEVERN TRENT SERVICES

SAMPLE RESULTS

LAB NAME:	**STL Richland**		**SDG: /RPT GRP:**	W03308 / 11519
LOT,RPT DB ID:	J0I210270-	9DKT1F10	**MATRIX:**	WATER
CLIENT ID:	B0YT20		**DATE RECEIVED:**	9/21/00 2:30:00 PM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
HEXCHROME	2.10E-02		N/A	N/A	2.00E-03	mg/L	N/A	EPA7196	DKT1F1	0266202

Number of Results: 1

Result = IDL When Not Detected
(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result <

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rptChemRadSample; v3.41

SEVERN TRENT SERVICES

DUPLICATE RESULTS

LAB NAME:	**STL Richland**		**SDG: /RPT GRP:**	W03308 / 11519
LOT,RPT DB ID:	J0I120243-	DK82E14R	**MATRIX:**	WATER
CLIENT ID:	B0YT15		**DATE RECEIVED:**	9/12/00 2:55:00 PM
ORIG LAB ID:	9DK82E10			

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
HEXCHROME	2.27E-01		N/A	N/A	2.00E-03	mg/L	N/A	EPA7196	2.23E-01	1.78%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland
rptChemRadDup; v3.41

SEVERN TRENT SERVICES

DUPLICATE RESULTS

LAB NAME:	**STL Richland**		**SDG: /RPT GRP:**	W03308 / 11519
LOT,RPT DB ID:	J0I130305-	DKA8314R	**MATRIX:**	WATER
CLIENT ID:	B0YT28		**DATE RECEIVED:**	9/13/00 3:00:00 PM
ORIG LAB ID:	9DKA8310			

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
HEXCHROME	5.33E-01		N/A	N/A	2.00E-03	mg/L	N/A	EPA7196	5.34E-01	0.19%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland
rptChemRadDup; v3.41

SEVERN TRENT SERVICES

DUPLICATE RESULTS

LAB NAME:	**STL Richland**		**SDG: /RPT GRP:**	W03308 / 11519
LOT,RPT DB ID:	J0I210270-	DKT1F14R	**MATRIX:**	WATER
CLIENT ID:	B0YT20		**DATE RECEIVED:**	9/21/00 2:30:00 PM
ORIG LAB ID:	9DKT1F10			

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
HEXCHROME	2.10E-02		N/A	N/A	2.00E-03	mg/L	N/A	EPA7196	2.10E-02	0.00%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland
rptChemRadDup; v3.41

SEVERN TRENT SERVICES

BLANK RESULTS

LAB NAME: STL Richland **SDG /RPT GRP:** W03308 / 11519

LOT,RPT DB ID: J0I130000- DK93E11B **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
HEXCHROME	0.00E+00	U	N/A	N/A	2.00E-03	mg/L	N/A	EPA7196	DK93E	0257277

Number of Results: 1

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL

Severn Trent Laboratories Richland

rptChemRadBlank; v3.41

SEVERN TRENT SERVICES

BLANK RESULTS

LAB NAME: STL Richland **SDG /RPT GRP:** W03308 / 11519

LOT,RPT DB ID: J0I130000- DKA9E11B **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
HEXCHROME	0.00E+00	U	N/A	N/A	2.00E-03	mg/L	N/A	EPA7196	DKA9E	0257535

Number of Results: 1

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL

Severn Trent Laboratories Richland

rptChemRadBlank; v3.41

SEVERN TRENT SERVICES

BLANK RESULTS

LAB NAME: STL Richland **SDG /RPT GRP:** W03308 / 11519

LOT,RPT DB ID: J0I220000- DKV1N11B **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
HEXCHROME	0.00E+00	U	N/A	N/A	2.00E-03	mg/L	N/A	EPA7196	DVK1N	0266202

Number of Results: 1

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL

Severn Trent Laboratories Richland

rptChemRadBlank; v3.41

SEVERN TRENT SERVICES

LABORATORY CONTROL SAMPLE

LAB NAME: STL Richland **SDG: /RPT GRP:** W03308 / 11519

LAB SAMPLE ID: DK93E12S **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
HEXCHROME	5.06E-01		N/A	N/A	2.00E-03	mg/L	N/A	5.00E-01	101.20%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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rptChemRadLcs; v3.41

SEVERN TRENT SERVICES

LABORATORY CONTROL SAMPLE

LAB NAME: STL Richland **SDG: /RPT GRP:** W03308 / 11519

LAB SAMPLE ID: DKA9E12S **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
HEXCHROME	5.00E-01		N/A	N/A	2.00E-03	mg/L	N/A	5.00E-01	100.00%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland

rptChemRadLcs; v3.41

SEVERN TRENT SERVICES

LABORATORY CONTROL SAMPLE

LAB NAME: STL Richland **SDG: /RPT GRP:** W03308 / 11519

LAB SAMPLE ID: DKV1N12S **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
HEXCHROME	4.99E-01		N/A	N/A	2.00E-03	mg/L	N/A	5.00E-01	99.80%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

SEVERN TRENT SERVICES

MATRIX SPIKE RESULTS

LAB NAME: STL Richland **SDG: /RPT GRP:** W03308 / 11519

LAB SAMPLE ID: DK82E12W **MATRIX:** WATER

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	5.36E-01		N/A	N/A	2.00E-03	mg/L	2.23E-01	5.26E-01	101.90%

Number of Results: 1

*Spike Result Corrected For Sample Result

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland

rptChemRadMatrixSpike; v3.41

SEVERN TRENT SERVICES

MATRIX SPIKE RESULTS

LAB NAME: STL Richland **SDG: /RPT GRP:** W03308 / 11519

LAB SAMPLE ID: DK82E13W **MATRIX:** WATER

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	5.37E-01		N/A	N/A	2.00E-03	mg/L	2.23E-01	5.26E-01	102.09%

Number of Results: 1

*Spike Result Corrected For Sample Result

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland

rptChemRadMatrixSpike; v3.41

SEVERN TRENT SERVICES

MATRIX SPIKE RESULTS

LAB NAME: STL Richland **SDG: /RPT GRP:** W03308 / 11519

LAB SAMPLE ID: DKA8312W **MATRIX:** WATER

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	5.26E-01		N/A	N/A	2.00E-03	mg/L	5.34E-01	5.26E-01	100.00%

Number of Results: 1

*Spike Result Corrected For Sample Result

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland

rptChemRadMatrixSpike; v3.41

SEVERN TRENT SERVICES

MATRIX SPIKE RESULTS

LAB NAME: STL Richland **SDG: /RPT GRP:** W03308 / 11519

LAB SAMPLE ID: DKA8313W **MATRIX:** WATER

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	5.36E-01		N/A	N/A	2.00E-03	mg/L	5.34E-01	5.26E-01	101.90%

Number of Results: 1

*Spike Result Corrected For Sample Result

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland

rptChemRadMatrixSpike; v3.41

SEVERN TRENT SERVICES

MATRIX SPIKE RESULTS

LAB NAME: STL Richland **SDG: /RPT GRP:** W03308 / 11519

LAB SAMPLE ID: DKT1F12W **MATRIX:** WATER

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	5.33E-01		N/A	N/A	2.00E-03	mg/L	2.10E-02	5.26E-01	101.33%

Number of Results: 1

*Spike Result Corrected For Sample Result

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland

rptChemRadMatrixSpike; v3.41

SEVERN TRENT SERVICES

MATRIX SPIKE RESULTS

LAB NAME: STL Richland **SDG: /RPT GRP:** W03308 / 11519

LAB SAMPLE ID: DKT1F13W **MATRIX:** WATER

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	5.33E-01		N/A	N/A	2.00E-03	mg/L	2.10E-02	5.26E-01	101.33%

Number of Results: 1

*Spike Result Corrected For Sample Result

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland

rptChemRadMatrixSpike; v3.41

Quanterra

Richland Laboratory
Data Review Check List
METALS

Work Order Number(s): DK82E BATCH # 0257277 LOT # J0I120243-001

Lab Sample Numbers or SDG: W03308

Method/Test/Parameter: CR+6 IN WATER RICHWC 5003 R.4

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency wih required number of levels?	✓			✓
2. Correlation coefficient within QC limits?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	✓			✓
4. Initial calibration blank(ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓
B. Continuing Calibration				
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
C. Sample Analysis				
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?			✓	✓
2. Were all sample holding times met?	✓			✓
D. QC Samples				
1. All results for the preparation blank below limits?	✓			✓
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?	✓			✓
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			✓
4. Analytical spikes within QC limits where applicable?			✓	✓
5. ICP only: One serial dilution performed per SDG?			✓	✓
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	✓
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	✓

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
E. Other				
1. Are all nonconformances included and noted?			✓	✓
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response:

Analyst: Martha Fabri Date: 9/13/00

Second-Level Review: Rosie Ross Date: 9/15/00

Form No. CG-191, Rev. 2, 1/97

Quanterra

Richland Laboratory
Data Review Check List
METALS

Work Order Number(s): DKA83 BATCH # 0257535 LOT# TOI130305-001

Lab Sample Numbers or SDG: W03308

Method/Test/Parameter: CR+6 IN WATER RICHWC5003 R.4

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency wih required number of levels?	✓			✓
2. Correlation coefficient within QC limits?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	✓			✓
4. Initial calibration blank(ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓
B. Continuing Calibration				
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
C. Sample Analysis				
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?			✓	✓
2. Were all sample holding times met?	✓			✓
D. QC Samples				
1. All results for the preparation blank below limits?	✓			✓
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?	✓			✓
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			✓
4. Analytical spikes within QC limits where applicable?			✓	✓
5. ICP only: One serial dilution performed per SDG?			✓	✓
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	✓
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	✓

0026

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
E. Other				
1. Are all nonconformances included and noted?			✓	✓
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response:

Analyst: Martha Fabre Date: 9/13/00

Second-Level Review: Roxie Ross Date: 9/15/00

Form No. CG-191, Rev. 2, 1/97

Quanterra

Richland Laboratory
Data Review Check List
METALS

Work Order Number(s): DKT1F BATCH # 0266202 LOT# J01210270-001

Lab Sample Numbers or SDG: W03308

Method/Test/Parameter: CR+6 IN WATER RICHWC 5003 B.4

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency wih required number of levels?	✓			✓
2. Correlation coefficient within QC limits?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	✓			✓
4. Initial calibration blank(ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓
B. Continuing Calibration				
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
C. Sample Analysis				
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?			✓	✓
2. Were all sample holding times met?	✓			✓
D. QC Samples				
1. All results for the preparation blank below limits?	✓			✓
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?	✓			✓
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			✓
4. Analytical spikes within QC limits where applicable?			✓	✓
5. ICP only: One serial dilution performed per SDG?			✓	✓
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	✓
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	✓

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
E. Other				
1. Are all nonconformances included and noted?			✓	✓
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response:

Analyst: Martha Fabre Date: 9/25/00

Second-Level Review: Rosie Ross Date: 9/26/00

Form No. CG-191, Rev. 2, 1/97

CHAIN OF CUSTODY

W-8 1U23

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # C00-029-56
		Page 1 of 1

Collector: KB HULSE	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-029	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1 & 2) GW SAMPLING, AUGUST 2000	Logbook No.: WM-SAWS-135	Ice Chest No.: SMC-147 Temp.
Shipped To (Lab): Severn Trent Incorporated	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: N/A
Protocol: CERCLA	~~Data Turnaround~~ 45 Days	Offsite Property No.: N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
** ** SDK
W03308 JOI120243

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0YT15 (F)		W	9/12/00	1050	1x500-mL G/P	7196_CR6: Hexavalent Chromium (1) DK82E	Cool 4C
B0YT16		W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB HULSE			9-12-00 1345	D.R. Brewington	D.R. Brewington		9/12/00 1345
D.R. Brewington			9/12/00 1455	K. [illegible]			9-12-00 1455
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

Figure 1. Sample Check-in List

Date/Time Received: 9/12/00 1455 SDG#: W03308

Work Order Number: J0I120243 SAF#: C00-029

Shipping Container ID: SML-147 Chain of Custody #: C00-02956

1. Outermost shipping container damaged? Yes [] No [✓]

2. Custody Seals on shipping container intact? Yes [✓] No []

3. Custody Seals dated and signed? Yes [✓] No []

4. Chain-of-Custody record present? Yes [✓] No []

5. Chain-of-Custody includes the following information:
   - Client name Yes [✓] No []
   - Project name or number Yes [✓] No []
   - Sample date/time for each sample Yes [✓] No []
   - Container types, sizes and number of containers Yes [✓] No []
   - Short description of sample, i.e., matrix Yes [✓] No []
   - Analyses requested Yes [✓] No []
   - Preservation used or "none" or N/A if not applicable Yes [✓] No []
   - Date and time of relinquish and receipt Yes [✓] No []
   - Signatures of those persons relinquishing and receiving Yes [✓] No []

6. Sample numbers on chain of custody match those on sample containers? Yes [✓] No []

7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes [✓] No []

8. Cooler temperature: NA

9. Vermiculite/packing materials is: Wet [] Dry [✓]

10. Samples have: [✓] tape [✓] custody seals ____ hazard labels ____ appropriate sample labels

11. Samples are: ____ in good condition ____ broken ____ leaking ____ have air bubbles

12. Were any anomalies identified in sample receipt? Yes [] No [✓]

13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: K. Schenlu Date: 9-12-00

Telephone/Fax/E:mailed to: _____ On _____ By _____

Client Sample Screening Results

14-Sep-00

(B) 9/14/00

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW B0YT15DK82E		9/13/2000 4:26:00 PM	QUAD21B	9/13/2000 10:34:18 PM	B0YT15DK82E	30	24	0.711666667	101	2.35166667
DK82E	LIQUID		Bkg:	9/13/2000 2:31:07 AM	BKG	600	53	0.088333333	609	1.015

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 2.25E+00 (uCi/ 5.06E-05 (pCi/ 1.01E+02 ± 2.9E+01 CAT I 2.5E-01 Lab Alq Lig
Ppt mg: 3.5 Units: L , ml Bet; Alq): 4.15E+00 Sa): 9.35E-05 Lig): 1.87E+02 ± 2.9E+01 2.7E-01

PGW B0YT28DKA83		9/13/2000 4:26:00 PM	QUAD21C	9/13/2000 10:34:18 PM	B0YT28DKA83	30	20	0.625	79	1.68666667
DKA83	LIQUID		Bkg:	9/13/2000 2:31:07 AM	BKG	600	25	0.041666667	568	0.94666667

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 1.84E+00 (uCi/ 4.14E-05 (pCi/ 8.28E+01 ± 2.6E+01 CAT I 3.0E-01 Lab Alq Lig
Ppt mg: 2.7 Units: L , ml Bet; Alq): 2.97E+00 Sa): 6.69E-05 Lig): 1.34E+02 ± 2.6E+01 3.7E-01

PGW B0YT77DK801		9/13/2000 4:26:00 PM	QUAD21D	9/13/2000 10:34:18 PM	B0YT77DK801	30	24	0.746666667	84	1.93
DK801	LIQUID		Bkg:	9/13/2000 2:31:07 AM	BKG	600	32	0.053333333	522	0.87

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 2.31E+00 (uCi/ 5.20E-05 (pCi/ 1.04E+02 ± 2.8E+01 CAT I 2.4E-01 Lab Alq Lig
Ppt mg: 2.5 Units: L , ml Bet; Alq): 3.38E+00 Sa): 7.61E-05 Lig): 1.52E+02 ± 2.6E+01 3.3E-01

PGW B0YT83DK6G4		9/13/2000 4:26:00 PM	QUAD22A	9/13/2000 10:34:19 PM	B0YT83DK6G4	30	41	1.313333333	121	3.02
DK6G4	LIQUID		Bkg:	9/13/2000 2:31:04 AM	BKG	600	32	0.053333333	608	1.01333333

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 3.72E+00 (uCi/ 8.37E-05 (pCi/ 1.67E+02 ± 3.0E+01 CAT I 1.5E-01 Lab Alq Lig
Ppt mg: 1.2 Units: L , ml Bet; Alq): 4.83E+00 Sa): 1.09E-04 Lig): 2.18E+02 ± 2.9E+01 2.3E-01

PGW B0YT85DK6FW		9/13/2000 4:26:00 PM	QUAD22B	9/13/2000 10:34:19 PM	B0YT85DK6FW	30	42	1.35	163	4.29666667
DK6FW	LIQUID		Bkg:	9/13/2000 2:31:04 AM	BKG	600	30	0.05	682	1.13666667

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 4.01E+00 (uCi/ 9.03E-05 (pCi/ 1.81E+02 ± 3.3E+01 CAT I 1.4E-01 Lab Alq Lig
Ppt mg: 1.2 Units: L , ml Bet; Alq): 7.36E+00 Sa): 1.66E-04 Lig): 3.31E+02 ± 3.5E+01 1.5E-01

PGW B0YT89DK6G0		9/13/2000 4:26:00 PM	QUAD22C	9/13/2000 10:34:19 PM	B0YT89DK6G0	30	29	0.91	81	1.68333333
DK6G0	LIQUID		Bkg:	9/13/2000 2:31:04 AM	BKG	600	34	0.056666667	610	1.01666667

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 2.70E+00 (uCi/ 6.07E-05 (pCi/ 1.21E+02 ± 2.8E+01 CAT I 2.1E-01 Lab Alq Lig
Ppt mg: 2.1 Units: L , ml Bet; Alq): 2.58E+00 Sa): 5.81E-05 Lig): 1.16E+02 ± 2.4E+01 4.3E-01

0033

(B) 9/14/00

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW B0YT91DK800		9/13/2000 4:26:00 PM	QUAD22D	9/13/2000 10:34:19 PM	B0YT91DK800	30	65	2.11	187	5.04666667
DK800	LIQUID		Bkg:	9/13/2000 2:31:04 AM	BKG	600	34	0.056666667	712	1.18666667

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 6.24E+00 (uCi/ 1.41E-04 (pCi/ 2.81E+02 + 3.8E+01 CAT I 8.9E-02 Lab
Ppt mg: 1.5 Units: L , ml Bet; Alq): 8.25E+00 Sa): 1.86E-04 L|g): 3.72E+02 + 3.7E+01 1.3E-01 Alq L|g

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW B0YX05DK71X		9/13/2000 4:26:00 PM	QUAD23B	9/13/2000 10:34:21 PM	B0YX05DK71X	30	37	1.153333333	109	2.64166667
DK71X	LIQUID		Bkg:	9/13/2000 2:31:13 AM	BKG	600	48	0.08	595	0.99166667

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 3.55E+00 (uCi/ 8.00E-05 (pCi/ 1.60E+02 + 3.1E+01 CAT I 1.6E-01 Lab
Ppt mg: 3.3 Units: L , ml Bet; Alq): 4.33E+00 Sa): 9.76E-05 L|g): 1.95E+02 + 2.9E+01 2.6E-01 Alq L|g

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW B0YX57DKA7R		9/13/2000 4:26:00 PM	QUAD23C	9/13/2000 10:34:21 PM	B0YX57DKA7R	30	47	1.506666667	1191	38.675
DKA7R	LIQUID		Bkg:	9/13/2000 2:31:13 AM	BKG	600	36	0.06	615	1.025

Anl Date: 9/14/00 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 3.41E+00 (uCi/ 1.53E-04 (pCi/ 1.53E+02 + 3.0E+01 CAT I 1.6E-01 Lab
Ppt mg: 1.9 Units: L , ml Bet; Alq): 7.42E+01 Sa): 3.34E-03 L|g): 3.34E+03 + 1.0E+02 1.5E-02 Alq L|g

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW B0YX58DKA8G		9/13/2000 4:26:00 PM	QUAD24A	9/13/2000 10:34:17 PM	B0YX58DKA8G	30	152	4.991666667	2029	66.6983333
DKA8G	LIQUID		Bkg:	9/13/2000 2:31:00 AM	BKG	600	45	0.075	561	0.935

Anl Date: 9/14/00 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 1.43E+01 (uCi/ 6.43E-04 (pCi/ 6.43E+02 + 5.4E+01 CAT I 3.9E-02 Lab
Ppt mg: 4.4 Units: L , ml Bet; Alq): 1.28E+02 Sa): 5.76E-03 L|g): 5.76E+03 + 1.3E+02 8.7E-03 Alq L|g

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW B0YX59DKA8P		9/13/2000 4:26:00 PM	QUAD24B	9/13/2000 10:34:17 PM	B0YX59DKA8P	30	28	0.848333333	183	5.15666667
DKA8P	LIQUID		Bkg:	9/13/2000 2:31:00 AM	BKG	600	51	0.085	566	0.94333333

Anl Date: 9/14/00 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 2.45E+00 (uCi/ 1.11E-04 (pCi/ 1.11E+02 + 2.8E+01 CAT I 2.3E-01 Lab
Ppt mg: 2.4 Units: L , ml Bet; Alq): 9.56E+00 Sa): 4.30E-04 L|g): 4.30E+02 + 3.9E+01 1.2E-01 Alq L|g

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW B0YXB6DKA8E		9/13/2000 4:26:00 PM	QUAD24C	9/13/2000 10:34:17 PM	B0YXB6DKA8E	30	41	1.303333333	1065	34.5066667
DKA8E	LIQUID		Bkg:	9/13/2000 2:31:00 AM	BKG	600	38	0.063333333	596	0.99333333

Anl Date: 9/14/00 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 2.83E+00 (uCi/ 1.27E-04 (pCi/ 1.27E+02 + 2.9E+01 CAT I 2.0E-01 Lab
Ppt mg: 2.4 Units: L , ml Bet; Alq): 6.46E+01 Sa): 2.91E-03 L|g): 2.91E+03 + 9.2E+01 1.7E-02 Alq L|g

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW B0YY12DKA89		9/13/2000 4:26:00 PM	QUAD24D	9/13/2000 10:34:17 PM	B0YY12DKA89	30	44	1.360666667	128	2.92266667
DKA89	LIQUID		Bkg:	9/14/2000 6:59:41 AM	BKG	500	53	0.106	672	1.344

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 3.97E+00 (uCi/ 8.95E-05 (pCi/ 1.79E+02 + 3.5E+01 CAT I 1.4E-01 Lab
Ppt mg: 2.5 Units: L , ml Bet; Alq): 4.95E+00 Sa): 1.11E-04 L|g): 2.23E+02 + 3.2E+01 2.2E-01 Alq L|g

0034

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C00-029-36

Page 1 of 1

Collector: KB HULSE	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-029	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 JAM (1 & 2) GW SAMPLING, AUGUST 2000	Logbook No.: WM SAWS-435	Ice Chest No.: SM 1527 Temp.
Shipped To (Lab): Severn Trent Incorporated	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: N/A
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
** ** SDL
W03308 DOI130305

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0YT28 (F)		W	9/13/00	0857	1x500-mL G/P	7196_CR6: Hexavalent Chromium (1) DKA83	Cool 4C
B0YT29		W	↓	↓	1x500-mL P	300.0_ANIONS_IC: Sulfate (1)	Cool 4C
B0YT29		W			1x20-mL P	Activity Scan	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB HULSE			1330 9-13-00	JG HOGAN			1330 9-13-00
JG HOGAN			9-13-00 1500	PNK Kreutz			9/13/00 1500

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

035

Date/Time Received: 9/13/00 1500 SDG#: W03308

Work Order Number: J0I130305 SAF#: C00-030/C00-029/S00-008

Shipping Container ID: SML527 Chain of Custody #: C00-030-3/C00-029-36/S00-008-4,98,3 5

1. Outermost shipping container damaged? Yes [] No [✓]

2. Custody Seals on shipping container intact? Yes [✓] No []

3. Custody Seals dated and signed? Yes [✓] No []

4. Chain-of-Custody record present? Yes [✓] No []

5. Chain-of-Custody includes the following information:
   - Client name Yes [✓] No []
   - Project name or number Yes [✓] No []
   - Sample date/time for each sample Yes [✓] No []
   - Container types, sizes and number of containers Yes [✓] No []
   - Short description of sample, i.e., matrix Yes [✓] No []
   - Analyses requested Yes [✓] No []
   - Preservation used or "none" or N/A if not applicable Yes [✓] No []
   - Date and time of relinquish and receipt Yes [✓] No []
   - Signatures of those persons relinquishing and receiving Yes [✓] No []

6. Sample numbers on chain of custody match those on sample containers? 13 Yes [✓] No []

7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes [✓] No []

8. Cooler temperature: 4°

9. Vermiculite/packing materials is: Wet [✓] Dry []

10. Samples have: ✓ tape ✓ hazard labels ____ custody seals ____ appropriate sample labels

11. Samples are: ✓ in good condition ____ leaking ____ broken ____ have air bubbles

12. Were any anomalies identified in sample receipt? Yes [] No []

13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: [signature] Date: 9/13/00

Telephone/Fax/E:mailed to: _____ On _____ By _____

Client Sample Screening Results

14-Sep-00

9/14/00

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW	B0YT15DK82E		9/13/2000 4:26:00 PM	QUAD21B	9/13/2000 10:34:18 PM	B0YT15DK82E	30	24	0.711666667	101	2.35166667
	DK82E	LIQUID		Bkg:	9/13/2000 2:31:07 AM	BKG	600	53	0.088333333	609	1.015

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 2.25E+00 (uCi/ 5.06E-05 (pCi/ 1.01E+02 ± 2.9E+01 CAT I 2.5E-01 Lab
Ppt mg: 3.5 Units: L , ml Bet; Alq): 4.15E+00 Sa): 9.35E-05 L|g): 1.87E+02 ± 2.9E+01 2.7E-01 Alq L|g

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW	B0YT28DKA83		9/13/2000 4:26:00 PM	QUAD21C	9/13/2000 10:34:18 PM	B0YT28DKA83	30	20	0.625	79	1.68666667
	DKA83	LIQUID		Bkg:	9/13/2000 2:31:07 AM	BKG	600	25	0.041666667	568	0.94666667

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 1.84E+00 (uCi/ 4.14E-05 (pCi/ 8.28E+01 ± 2.6E+01 CAT I 3.0E-01 Lab
Ppt mg: 2.7 Units: L , ml Bet; Alq): 2.97E+00 Sa): 6.69E-05 L|g): 1.34E+02 ± 2.6E+01 3.7E-01 Alq L|g

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW	B0YT77DK801		9/13/2000 4:26:00 PM	QUAD21D	9/13/2000 10:34:18 PM	B0YT77DK801	30	24	0.746666667	84	1.93
	DK801	LIQUID		Bkg:	9/13/2000 2:31:07 AM	BKG	600	32	0.053333333	522	0.87

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 2.31E+00 (uCi/ 5.20E-05 (pCi/ 1.04E+02 ± 2.8E+01 CAT I 2.4E-01 Lab
Ppt mg: 2.5 Units: L , ml Bet; Alq): 3.38E+00 Sa): 7.61E-05 L|g): 1.52E+02 ± 2.6E+01 3.3E-01 Alq L|g

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW	B0YT83DK6G4		9/13/2000 4:26:00 PM	QUAD22A	9/13/2000 10:34:19 PM	B0YT83DK6G4	30	41	1.313333333	121	3.02
	DK6G4	LIQUID		Bkg:	9/13/2000 2:31:04 AM	BKG	600	32	0.053333333	608	1.01333333

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 3.72E+00 (uCi/ 8.37E-05 (pCi/ 1.67E+02 ± 3.0E+01 CAT I 1.5E-01 Lab
Ppt mg: 1.2 Units: L , ml Bet; Alq): 4.83E+00 Sa): 1.09E-04 L|g): 2.18E+02 ± 2.9E+01 2.3E-01 Alq L|g

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW	B0YT85DK6FW		9/13/2000 4:26:00 PM	QUAD22B	9/13/2000 10:34:19 PM	B0YT85DK6FW	30	42	1.35	163	4.29666667
	DK6FW	LIQUID		Bkg:	9/13/2000 2:31:04 AM	BKG	600	30	0.05	682	1.13666667

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 4.01E+00 (uCi/ 9.03E-05 (pCi/ 1.81E+02 ± 3.3E+01 CAT I 1.4E-01 Lab
Ppt mg: 1.2 Units: L , ml Bet; Alq): 7.36E+00 Sa): 1.66E-04 L|g): 3.31E+02 ± 3.5E+01 1.5E-01 Alq L|g

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW	B0YT89DK6G0		9/13/2000 4:26:00 PM	QUAD22C	9/13/2000 10:34:19 PM	B0YT89DK6G0	30	29	0.91	81	1.68333333
	DK6G0	LIQUID		Bkg:	9/13/2000 2:31:04 AM	BKG	600	34	0.056666667	610	1.01666667

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 2.70E+00 (uCi/ 6.07E-05 (pCi/ 1.21E+02 ± 2.8E+01 CAT I 2.1E-01 Lab
Ppt mg: 2.1 Units: L , ml Bet; Alq): 2.58E+00 Sa): 5.81E-05 L|g): 1.16E+02 ± 2.4E+01 4.3E-01 Alq L|g

0037

(B) 9/14/00

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW	B0YT91DK800		9/13/2000 4:26:00 PM	QUAD22D	9/13/2000 10:34:19 PM	B0YT91DK800	30	65	2.11	187	5.04666667
	DK800	LIQUID		Bkg:	9/13/2000 2:31:04 AM	BKG	600	34	0.056666667	712	1.18666667

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 6.24E+00 (uCi/ 1.41E-04 (pCi/ 2.81E+02 ± 3.8E+01 CAT I 8.9E-02 Lab
Ppt mg: 1.5 Units: L , ml Bet; Alq): 8.25E+00 Sa): 1.86E-04 L|g): 3.72E+02 + 3.7E+01 1.3E-01 Alq L|g

PGW	B0YX05DK71X		9/13/2000 4:26:00 PM	QUAD23B	9/13/2000 10:34:21 PM	B0YX05DK71X	30	37	1.153333333	109	2.64166667
	DK71X	LIQUID		Bkg:	9/13/2000 2:31:13 AM	BKG	600	48	0.08	595	0.99166667

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 3.55E+00 (uCi/ 8.00E-05 (pCi/ 1.60E+02 + 3.1E+01 CAT I 1.6E-01 Lab
Ppt mg: 3.3 Units: L , ml Bet; Alq): 4.33E+00 Sa): 9.76E-05 L|g): 1.95E+02 + 2.9E+01 2.6E-01 Alq L|g

PGW	B0YX57DKA7R		9/13/2000 4:26:00 PM	QUAD23C	9/13/2000 10:34:21 PM	B0YX57DKA7R	30	47	1.506666667	1191	38.675
	DKA7R	LIQUID		Bkg:	9/13/2000 2:31:13 AM	BKG	600	36	0.06	615	1.025

Anl Date: 9/14/00 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 3.41E+00 (uCi/ 1.53E-04 (pCi/ 1.53E+02 + 3.0E+01 CAT I 1.6E-01 Lab
Ppt mg: 1.9 Units: L , ml Bet; Alq): 7.42E+01 Sa): 3.34E-03 L|g): 3.34E+03 + 1.0E+02 1.5E-02 Alq L|g

PGW	B0YX58DKA8G		9/13/2000 4:26:00 PM	QUAD24A	9/13/2000 10:34:17 PM	B0YX58DKA8G	30	152	4.991666667	2029	66.6983333
	DKA8G	LIQUID		Bkg:	9/13/2000 2:31:00 AM	BKG	600	45	0.075	561	0.935

Anl Date: 9/14/00 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 1.43E+01 (uCi/ 6.43E-04 (pCi/ 6.43E+02 + 5.4E+01 CAT I 3.9E-02 Lab
Ppt mg: 4.4 Units: L , ml Bet; Alq): 1.28E+02 Sa): 5.76E-03 L|g): 5.76E+03 + 1.3E+02 8.7E-03 Alq L|g

PGW	B0YX59DKA8P		9/13/2000 4:26:00 PM	QUAD24B	9/13/2000 10:34:17 PM	B0YX59DKA8P	30	28	0.848333333	183	5.15666667
	DKA8P	LIQUID		Bkg:	9/13/2000 2:31:00 AM	BKG	600	51	0.085	566	0.94333333

Anl Date: 9/14/00 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 2.45E+00 (uCi/ 1.11E-04 (pCi/ 1.11E+02 + 2.8E+01 CAT I 2.3E-01 Lab
Ppt mg: 2.4 Units: L , ml Bet; Alq): 9.56E+00 Sa): 4.30E-04 L|g): 4.30E+02 + 3.9E+01 1.2E-01 Alq L|g

PGW	B0YXB6DKA8E		9/13/2000 4:26:00 PM	QUAD24C	9/13/2000 10:34:17 PM	B0YXB6DKA8E	30	41	1.303333333	1065	34.5066667
	DKA8E	LIQUID		Bkg:	9/13/2000 2:31:00 AM	BKG	600	38	0.063333333	596	0.99333333

Anl Date: 9/14/00 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 2.83E+00 (uCi/ 1.27E-04 (pCi/ 1.27E+02 + 2.9E+01 CAT I 2.0E-01 Lab
Ppt mg: 2.4 Units: L , ml Bet; Alq): 6.46E+01 Sa): 2.91E-03 L|g): 2.91E+03 + 9.2E+01 1.7E-02 Alq L|g

PGW	B0YYL2DKA89		9/13/2000 4:26:00 PM	QUAD24D	9/13/2000 10:34:17 PM	B0YYL2DKA89	30	44	1.360666667	128	2.92266667
	DKA89	LIQUID		Bkg:	9/14/2000 6:59:41 AM	BKG	500	53	0.106	672	1.344

Anl Date: 9/14/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 3.97E+00 (uCi/ 8.95E-05 (pCi/ 1.79E+02 + 3.5E+01 CAT I 1.4E-01 Lab
Ppt mg: 2.5 Units: L , ml Bet; Alq): 4.95E+00 Sa): 1.11E-04 L|g): 2.23E+02 + 3.2E+01 2.2E-01 Alq L|g

0038

α- 2 1000

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # C00-029-3
		Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-029	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 JAM (1 & 2) GW SAMPLING, AUGUST 2000	Logbook No.: WM-SAWS-H 37	Ice Chest No.: SINL 147 Temp.
Shipped To (Lab): Severn Trent Incorporated	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: NA
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: ↓

POSSIBLE SAMPLE HAZARDS/REMARKS
** ** SDG
W03308 DOI 210270

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0YT20 (F)		W	9-21-00	1112	1x500-mL G/P	7196_CR6: Hexavalent Chromium (1) * DKTIF	Cool 4C
B0YT21		W	↓	↓	1x500-mL P	300.0_ANIONS_IC: Sulfate (1)	Cool 4C
B0YT21		W	↓	↓	1x20-mL P	Activity Scan *	None

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
D. R. BREWINGTON	D.R. Brewington Jr	SEP 21 2000 1130	2100GPM BWKrentz	BWK	SEP 21 2000 1430
Relinquished By		Date/Time	Received By		Date/Time
Relinquished By		Date/Time	Received By		Date/Time
Relinquished By		Date/Time	Received By		Date/Time

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

0039

Date/Time Received: 9/21/00 1430 SDG#: WU 5508

Work Order Number: JOI210270 SAF#: COU-029 / WOO-009

Shipping Container ID: SML 147 Chain of Custody #: COU-029-3 / WOO-009-27

1. Outermost shipping container damaged? Yes [] No [✓]

2. Custody Seals on shipping container intact? Yes [✓] No []

3. Custody Seals dated and signed? Yes [✓] No []

4. Chain-of-Custody record present? Yes [✓] No []

5. Chain-of-Custody includes the following information:
   - Client name Yes [✓] No []
   - Project name or number Yes [✓] No []
   - Sample date/time for each sample Yes [✓] No []
   - Container types, sizes and number of containers Yes [✓] No []
   - Short description of sample, i.e., matrix Yes [✓] No []
   - Analyses requested Yes [✓] No []
   - Preservation used or "none" or N/A if not applicable Yes [✓] No []
   - Date and time of relinquish and receipt Yes [✓] No []
   - Signatures of those persons relinquishing and receiving Yes [✓] No []

6. Sample numbers on chain of custody match those on sample containers? 5 Yes [✓] No []

7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes [✓] No []

8. Cooler temperature: 4°C

9. Vermiculite/packing materials is: Wet [✓] Dry []

10. Samples have: ✓ tape ✓ hazard labels ✓ custody seals ✓ appropriate sample labels

11. Samples are: ✓ in good condition ____ leaking ____ broken ____ have air bubbles

12. Were any anomalies identified in sample receipt? Yes [] No []

13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: [signature] Date: 9/21/00

Telephone/Fax/E-mailed to: _____ On _____ By _____

Client Sample Screening Results

25-Sep-00

(B3) 9/25/00

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW	B0YT20DKT1F		9/25/2000 8:16:00 AM	QUAD21A	9/25/2000 11:31:27 AM	B0YT20DKT1F	30	8	0.143333333	64	1.12166667
	DKT1F	LIQUID		Bkg:	9/23/2000 1:48:08 AM	BKG	600	74	0.123333333	607	1.01166667

Anl Date: 9/25/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 4.04E-01 (uCi/ 9.11E-06 (pCi/ 1.82E+01 ± 2.4E+01 CAT I 1.4E+00 Lab Alq
Ppt mg: 3.6 Units: L , ml Bet; Alq): 2.18E+00 Sa): 4.91E-05 L|g): 9.81E+01 ± 2.5E+01 5.1E-01 L|g

PGW	B10234DKT1R		9/25/2000 8:16:00 AM	QUAD21B	9/25/2000 11:31:27 AM	B10234DKT1R	30	18	0.476666667	60	1.085
	DKT1R	LIQUID		Bkg:	9/23/2000 1:48:08 AM	BKG	600	74	0.123333333	549	0.915

Anl Date: 9/25/00 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 1.53E+00 (uCi/ 6.89E-05 (pCi/ 6.89E+01 ± 2.7E+01 CAT I 3.6E-01 Lab Alq
Ppt mg: 4 Units: L , ml Bet; Alq): 1.83E+00 Sa): 8.25E-05 L|g): 8.25E+01 ± 2.3E+01 6.1E-01 L|g

PGW	B104C7DKWGW		9/25/2000 8:16:00 AM	QUAD21C	9/25/2000 11:31:27 AM	B104C7DKWGW	30	63	1.97	5224	173.178333
	DKWGW	LIQUID		Bkg:	9/23/2000 1:48:08 AM	BKG	600	78	0.13	573	0.955

Anl Date: 9/25/00 Tot Sa, Alq: 4.00E+00 , 1.00E+01 Alp; (Dpm/ 6.88E-01 (uCi/ 1.24E-04 (pCi/ 3.10E+01 ± 2.3E+01 CAT I 8.1E-01 Lab Alq
Ppt mg: 2.3 Units: L , ml Bet; Alq): 3.40E+02 Sa): 6.13E-02 L|g): 1.53E+04 ± 2.1E+02 3.3E-03 L|g

PGW	B104C8DKWH3		9/25/2000 8:16:00 AM	QUAD21D	9/25/2000 11:31:27 AM	B104C8DKWH3	30	35	1.066666667	104	2.50666667
	DKWH3	LIQUID		Bkg:	9/23/2000 1:48:08 AM	BKG	600	60	0.1	576	0.96

Anl Date: 9/25/00 Tot Sa, Alq: 4.00E+00 , 1.00E+01 Alp; (Dpm/ 3.20E+00 (uCi/ 5.76E-04 (pCi/ 1.44E+02 ± 3.0E+01 CAT I 1.7E-01 Lab Alq
Ppt mg: 0 Units: L , ml Bet; Alq): 4.29E+00 Sa): 7.74E-04 L|g): 1.93E+02 ± 2.9E+01 2.6E-01 L|g

0041

RQC050

Severn Trent Laboratories, Inc.
WET CHEM BATCHSHEET

Run Date: 9/13/00
Time: 10:56:31

STL Richland

PRODUCTION FIGURES - WET CHEM

TOTAL NUMBER	SAMPLE NUMBER	QC	RE-RUN MATRIX	RE-RUN OTHER	MISC NUMBER	TOTAL HOURS	EXPANDED DELIVERABLE

METHOD: EA Hexavalent Chromium 6A)
QC BATCH #: **0257277**
PREP DATE: 9/13/00
USER: ROSSR

INITIALS:
PREP _____
ANAL _____

DATA ENTRY:
INITIALS _____
DATE _____

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:
DK82E-1-01	J-0I120243-001	XX I 88 EA 5I	E	_____	B0YT15
DK82E-1-03	J-0I120243-001-D	XX I 88 EA 5I	E	_____	B0YT15
DK82E-1-02	J-0I120243-001-S	XX I 88 EA 5I	E	_____	B0YT15
DK82E-1-04	J-0I120243-001-X	XX I 88 EA 5I	E	_____	B0YT15 DUP
DK93E-1-01	J-0I130000-277-B	XX I 88 EA 5I		_____	INTRA-LAB BLANK
DK93E-1-02	J-0I130000-277-C	XX I 88 EA 5I		_____	INTRA-LAB CHECK

Control Limits
(85-115)
(85-115)
(85-115)

0042

Quanterra

COC Signature Page

Lot or Batch #: 0257277	Initials/Date	Procedure #
Released By	RPA 9/12/00	Richr0009
Received	M.J. 9/12/00	RICHWC 5003 R.4
Released By	M.J. 9/14/00	n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		

RC-131, Rev.1, 6/99

RQC050

Severn Trent Laboratories, Inc.
WET CHEM BATCHSHEET

Run Date: 9/13/00
Time: 16:40:31

STL Richland

PRODUCTION FIGURES - WET CHEM

TOTAL NUMBER	SAMPLE NUMBER	QC	RE-RUN MATRIX	RE-RUN OTHER	MISC NUMBER	TOTAL HOURS	EXPANDED DELIVERABLE

METHOD: EA Hexavalent Chromium 6A)
QC BATCH #: **0257535**
PREP DATE: 9/13/00
USER: ROSSR

INITIALS:
PREP _____
ANAL _____

DATA ENTRY:
INITIALS _____
DATE _____

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:	Control Limits
DKA9E-1-01	J-0I130000-535-B	XX I 88 EA 5I		_____	INTRA-LAB BLANK	(85-115)
DKA9E-1-02	J-0I130000-535-C	XX I 88 EA 5I		_____	INTRA-LAB CHECK	(85-115)
DKA83-1-01	J-0I130305-001	XX I 88 EA 5I	E	_____	B0YT28	(85-115)
DKA83-1-03	J-0I130305-001-D	XX I 88 EA 5I	E	_____	B0YT28	
DKA83-1-02	J-0I130305-001-S	XX I 88 EA 5I	E	_____	B0YT28	
DKA83-1-04	J-0I130305-001-X	XX I 88 EA 5I	E	_____	B0YT28 DUP	

Quanterra

COC Signature Page

Lot or Batch #: 0257535	Initials/Date	Procedure #
Released By	KD 9-13-00	Richwc0009
Received	M.J. 9/13/00	RICHWC 5003 R.4
Released By	M.J. 9/14/00	n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		

RC-131, Rev.1, 6/99

RQC050

Severn Trent Laboratories, Inc.
WET CHEM BATCHSHEET

Run Date: 9/22/00
Time: 9:12:47

STL Richland

PRODUCTION FIGURES - WET CHEM

TOTAL NUMBER	SAMPLE NUMBER	QC	RE-RUN MATRIX	RE-RUN OTHER	MISC NUMBER	TOTAL HOURS	EXPANDED DELIVERABLE

METHOD: EA Hexavalent Chromium 6A)
QC BATCH #: **0266202**
PREP DATE: 9/22/00
USER: NEWTONM

INITIALS:
PREP _____
ANAL _____

DATA ENTRY:
INITIALS _____
DATE _____

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:
DKT1F-1-01	J-0I210270-001	XX I 88 EA 5I	E	_____	B0YT20
DKT1F-1-03	J-0I210270-001-D	XX I 88 EA 5I	E	_____	B0YT20
DKT1F-1-02	J-0I210270-001-S	XX I 88 EA 5I	E	_____	B0YT20
DKT1F-1-04	J-0I210270-001-X	XX I 88 EA 5I	E	_____	B0YT20 DUP
DKV1N-1-01	J-0I220000-202-B	XX I 88 EA 5I		_____	INTRA-LAB BLANK
DKV1N-1-02	J-0I220000-202-C	XX I 88 EA 5I		_____	INTRA-LAB CHECK
		Control Limits			
		(85-115)			
		(85-115)			
		(85-115)			

0266075

0046

SEVERN TRENT SERVICES

COC Signature Page

Lot or Batch # 02L6L202

	Initials/Date	Procedure #
Released by	9/25/00	RC0009
Received	M.J. 9/21/00	RICHWC 5003 R.4
Released by	M.J. 9/25/00	N/A
Received		
Released by		N/A
Received		
Released by		N/A
Received		
Released by		N/A
Received		
Released by		N/A
Received		
Released by		N/A
Received		

RC-131, Rev. 2, 8/00